

**ABSTRACT OF THE DISCLOSURE**

Disclosed is a method of polymerization and copolymerization of ethylene, which is carried out in the presence of (a) a solid titanium complex catalyst prepared by the steps of (i) preparing a magnesium  
5 solution by contacting halogenated magnesium compounds with alcohol, (ii) reacting the magnesium solution with ester compound having at least one hydroxyl group and silicon compound having alkoxy group, (iii) preparing a solid titanium catalyst component by reacting mixture of titanium compound and haloalkane compound; and (iv) producing solid titanium complex catalyst by reacting the solid titanium  
10 catalyst component with mixture of aluminum compound and haloalkane compound, or with haloalkane; and (b) organometallic compounds in Group II or III of the Periodic Table.